

TABLE 4-1
(CONT.)

Sample #	Sampling Method	Sample Depth (ft.)	Sample Location	Justification for Sample Collection	Parameter Suites
MW-6L	Shelby Tube	5.5-7.5	Soil boring MW-6L	Collected to investigate the permeability of the clay.	Permeability Analysis
LOF-1	Stainless Steel Utensil	0.2-0.4	Collected sample immediately below the drain pipe outfall located in the field west of the facility. Southern most drain pipe outfall location.	Evaluate the sediment immediately below the outfall drain pipe.	VOCs, SVOCs, TPHs, PCBs and Metals
LOF-2	Stainless Steel Utensil	0.2-0.4	Collected sample immediately below the drain pipe outfall, located in the field west of the facility, near the southern end of the propane tank.	Evaluate the sediment immediately below the outfall drain pipe.	VOCs, SVOCs, TPHs, PCBs and Metals
LOF-3	Stainless Steel Utensil	0.2-0.4	Collected sample immediately below the drain pipe outfall, located in the field west of the facility, near the middle area of the propane tank.	Evaluate the sediment immediately below the outfall drain pipe.	VOCs, SVOCs, TPHs, PCBs and Metals
LOF-4	Stainless Steel Utensil	0.2-0.5	Collected sample immediately below the drain pipe outfall, located in the field west of the facility, near the northern end of the propane tank.	Evaluate the sediment immediately below the outfall drain pipe.	VOCs, SVOCs, TPHs, PCBs and Metals

TABLE 4-1
(CONT.)

Sample #	Sampling Method	Sample Depth (ft.)	Sample Location	Justification for Sample Collection	Parameter Suites
LOF-5	Stainless Steel Utensil	0.2-0.5	Collected sample immediately below the drain pipe outfall located in the field west of the facility, northern most drain pipe outfall location.	Evaluate the sediment immediately below the outfall drain pipe.	VOCs, SVOCs, TPHs, PCBs and Metals

The soil cuttings generated from the soil borings were placed into 55-gallon drums and labeled as non-hazardous. A total of seven soil drums were generated and staged in a central location.

After each soil boring was completed, a monitoring well was installed at that location. Section 4.4 discusses the monitoring well installation procedures.

4.2 SURFACE/NEAR-SURFACE SOILS

The objective for the collection of surface/near-surface soil samples was to identify, through limited sampling and chemical analysis to the extent feasible, the presence of contamination in surface/near-surface soils from historic practices. Table 4-1 presents the Soil Sampling Summary.

Apart from the modifications presented in Table 4-2, Surface/Near-Surface Soil Sampling Deviations from the Work Plan, surface/near-surface soil samples were collected in accordance with the work plan. Figure 4-1 presents the Sample Location Map. Photographs of the surface/near surface soil sample locations are included in Appendix B.

4.2.1 Sampling Methods

A total of 11 surface/near-surface soil samples were collected. Seven of the eleven soil samples were collected using a decontaminated hand auger. The auger boring was screened for VOCs with an OVM as the boring was advanced; no elevated OVM readings were recorded. Upon reaching the sample depth, the hand auger was removed from the boring and samples for VOC analysis were collected first. The remaining soil from the auger was mixed in a decontaminated stainless steel bowl with a decontaminated stainless steel utensil and placed in the appropriate sample containers.

The remaining four surface/near-surface soil samples were collected using a decontaminated 3-inch by 2-foot long carbon steel split spoon. The split spoon was driven with a rig mounted 140lb. hammer. Once the sample was collected, the split spoon was opened and immediately screened for VOCs. No elevated readings were observed. Then, samples to be analyzed for VOCs were collected. The remaining soil from the split spoon was mixed in a

TABLE 4-2
FURON COMPANY - PHASE II ESA
LIBERTY STREET

Surface/Near-Surface Soil Sampling
Deviations to the Work Plan

Proposed Sampling	Actual Sampling Performed
Collect two (2) near-surface soil samples from the area of a suspected copper hydroxide solution release, in the vicinity of the southeast corner of the building.	Collected one (1) near-surface soil sample (SS-SE).
Collect two (2) soil samples exterior of the northwest corner of the building, in the vicinity of a possible historic process discharge area.	Collected one (1) soil sample (LF-NW) in the vicinity of a possible historic process discharge area. Collected a second soil sample (SS-01) exterior of the northwest corner of the building.
Collect a total of four (4) sediment samples, one (1) sample from below each drain pipe outfall. Samples will be taken from the drainage channel bed immediately below the outfalls.	Five (5) sediment samples were collected. The fifth drain pipe outfall was discovered during the Phase II ESA.
Collect two (2) soil samples in proximity to the boiler room sump, at depths of 0.5-1.5 and 4.0-5.0 feet.	One soil sample (Sump-03) was collected in proximity to the boiler room sump. Two other soil samples (BR-Sump-01 and BR-Sump-02) were collected adjacent to the sump located in the courtyard area.

decontaminated stainless bowl with a decontaminated stainless steel utensil, and placed in the appropriate sample containers.

4.3 SEDIMENTS

The objective for the collection of the sediment samples was to identify whether contamination was evident in the sediments associated with the drain pipes identified as discharging to the field west of the facility. These drain pipes may be associated with the stormwater collection system and/or underdrains associated with the building.

The sediment samples were collected in accordance with the work plan. The sediment sample locations are presented in **Figure 4-1**, Sample Location Map. Photographs of the sediment sample locations are presented in **Appendix B**.

4.3.1 Sampling Methods

A total of five sediment samples were collected, one per outfall pipe, from the drainage channel bed immediately below the drainage pipe outfalls.

The sediment samples were collected using decontaminated stainless steel bowls and utensils. First, the top 0.2 feet of soil (containing organic material) was removed. Then, a representative section of soil from 0.2 to 0.5 feet below grade was collected for VOC analysis. Afterwards, additional soil from the sample depth was collected and placed in a decontaminated stainless steel bowl, mixed, and then placed in the remaining sample containers.

4.4 MONITORING WELL INSTALLATION

The installation of each monitoring well began after the soil boring was completed. Six monitoring wells were installed: MW-1L, MW-2L, MW-3L, MW-4L, MW-5L and MW-6L. The monitoring wells were installed in accordance with NYSDEC guidelines.

The six wells were installed at the Liberty Street facility to identify and characterize potential releases of hazardous materials or chemicals from identified sources or areas of environmental concern, and to establish baseline groundwater quality at the site.

The six monitoring wells were constructed of new 10-foot long, 2-inch schedule 40 Polyvinyl Chloride (PVC) piping with a screen slot size of 0.010 inch, threaded flush joints and an expandable cap. A coarse grained sand pack (more #0 sand) was poured in the annular space between the well screen and the hollow stem augers, at least to the top of the screen and not more than 6 inches below the bottom of the screen. The augers were removed as the annular space was filled with sand. A finer grained sand pack (more #00) was placed on top of the coarser grained sand. The total length of sand pack placed above the top of the screen did not exceed 3.0 feet. Bentonite pellets were then placed on top of the sand to approximately 1 to 2 feet below ground surface, and then hydrated. Afterward, a protective steel casing, 4 inches in diameter by 5 feet long, was placed over the monitoring well pipe. The protective steel casing extended at least 1.5 feet below the ground surface, but not in contact with the sandpack. The protective steel casing was then held in place by pouring bentonite pellets or chips around the steel casing, up to the ground surface. A padlock was placed on the protective steel casing. The monitoring well completion diagrams are presented in Appendix D.

After well installation was completed, the downhole drilling tools (i.e., hollow stem augers, drilling rods, split spoons, etc.) were decontaminated in accordance with the work plan. All liquids generated from the decontamination process were placed in 55-gallon drums and staged in a central location. A total of three drums, containing decontamination water, were generated. These drums were labeled as non-hazardous waste, and staged in a central location.

4.5 MONITORING WELL DEVELOPMENT

Five of the six monitoring wells installed at the Liberty Street facility were developed no sooner than two days after well installation. One monitoring well, MW-4L, was dry. Therefore, monitoring well MW-4L was not developed. The following is the procedure used for the development of these wells:

- Measure depth to groundwater and well depth with an electronic water level meter.
- Calculate volume of water within the well and the sand pack.
- Using a PVC bailer, surge the well for approximately five minutes to remove any silt and clay "skin" that may have formed on the borehole wall while drilling.
- Measure the conductivity, pH, temperature, and turbidity of the surge water.
- Purge the wells to dryness (due to slow recharge of the well).

The monitoring well development procedures were repeated three times for each well, after allowing the wells to recover to static water levels. The monitoring wells recovered to static water levels within approximately eight hours.

The groundwater generated during monitoring well development was placed in 55-gallon drums. A total of two drums were generated and labeled as non-hazardous waste. These drums were staged in a central location.

4.6 GROUNDWATER SAMPLING

4.6.1 Monitoring Well Purging

Five of the six monitoring wells installed at the Liberty Street facility were sampled on March 7-8, 1996. Monitoring well MW-4L was not sampled because it was dry. The five monitoring wells were purged on March 7 prior to sampling. Before sampling the wells, the following well purging procedure was followed:

- Measure depth to groundwater and well depth with a decontaminated electronic water level meter.
- Calculate the standing water volume in the well.
- Purge the wells dry with a dedicated disposable Teflon® bailer. Conductivity, pH, temperature, and turbidity measurements were taken at the start of purging.
- After purging the well, the Teflon® bailer was left in the monitoring well to be used for sampling.

Due to their slow recharge rate and limited quantities of water in the wells, the monitoring wells were allowed to recharge approximately 5.5 hours before they were sampled.

4.6.2 Monitoring Well Sampling

The five monitoring wells at the Liberty Street facility were sampled using dedicated disposable Teflon® bailers. Groundwater samples collected for volatile analyses were collected first, before any of the other parameters, in a manner that minimized the loss of volatile compounds. Sampling for the remaining parameters was carried out in the following sequence: metals, semivolatiles, and TPH. Only one of the 5 wells, MW-2L, was analyzed for TPH. The turbidity values recorded during sampling, after the metals were collected, were as follows:

- MW-1L > 1000 NTUs
- MW-2L 36 NTUs
- MW-3L 52 NTUs
- MW-5L 46 NTUs
- MW-6L 27 NTUs

Groundwater samples were collected with the required quality assurance/quality control (QA/QC) samples, and transported to the laboratory for chemical analysis following NYSDEC-CLP methodology.

5.0 RESULTS

5.1 ANALYTICAL METHODS

The eleven surface/near surface soil samples, eight soil boring samples, five sediment samples, and five groundwater samples collected during the Phase II ESA at the Liberty Street facility were analyzed by IEA, Inc. IEA, Inc., is a Contract Laboratory Protocol (CLP) laboratory certified by the New York State Department of Health. The samples were analyzed for one or more of the following parameter suites: TCL volatile organics per NYSDEC-CLP, TCL semivolatiles organics per NYSDEC-CLP, PCBs and TAL metals per NYSDEC-CLP, and TPHs per USEPA Method 418.1.

5.2 SOIL SAMPLING RESULTS

NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046 (revised January 24, 1994) values were used as a basis of comparison for the soil sample results. For metals, the value used for comparison was the NYSDEC TAGM value or the background concentration determined from the background sample, whichever was higher. The TAGM values are designated as the recommended soil cleanup objective concentration. These concentrations are presented on **Table 5-1**. Soil sample MW-2L-05 was collected at the topographic high elevation at the facility and was designated as the background sample location. The full chemical analysis results for the soil borings are presented in **Appendix E**. The full chemical analysis results for the surface/near surface soils are presented in **Appendix F**.

Volatile Organic Compounds

Soil Borings

Six VOCs were detected in the eight soil boring samples. These VOCs included 1,1,2,2-tetrachloroethane, 1,2-dichloroethene (total), 2-butanone, acetone, chloroform, and methylene chloride. All six compounds were detected below their associated TAGM value.

TABLE 5-1

**FURON COMPANY PHASE II ESA
LIBERTY STREET FACILITY
RECOMMENDED SOIL CLEANUP OBJECTIVE CONCENTRATIONS**

Metal Compound	NYSDEC TAGM Value (mg/kg) (*Source)	Site Background Concentration (mg/kg)	Recommended Soil Cleanup Objective Concentration (mg/kg) (*Source)
Aluminum	SB	21,400	21,400
Antimony	SB	ND	ND
Arsenic	7.5 or SB	9.9	9.9
Barium	300 or SB	129	300
Beryllium	0.16 or SB	0.94	0.94
Cadmium	1 or SB	0.52	1
Calcium	SB	19,900	19,900
Chromium	10 or SB	22.5	22.5
Cobalt	30 or SB	21.7	30
Copper	25 or SB	40.9	40.9
Iron	2000 or SB	45,300	45,300
Lead	4-61	20.5	**61
Magnesium	SB	15,100	15,100
Manganese	SB	1,110	1,110
Mercury	0.1	ND	0.1
Nickel	13 or SB	40.9	40.9
Potassium	SB	2,150	2,150
Selenium	2 or SB	3.3	3.3
Silver	SB	ND	ND
Sodium	SB	129	129
Thallium	SB	ND	ND
Vanadium	150 or SB	21.6	150
Zinc	20 or SB	122	122

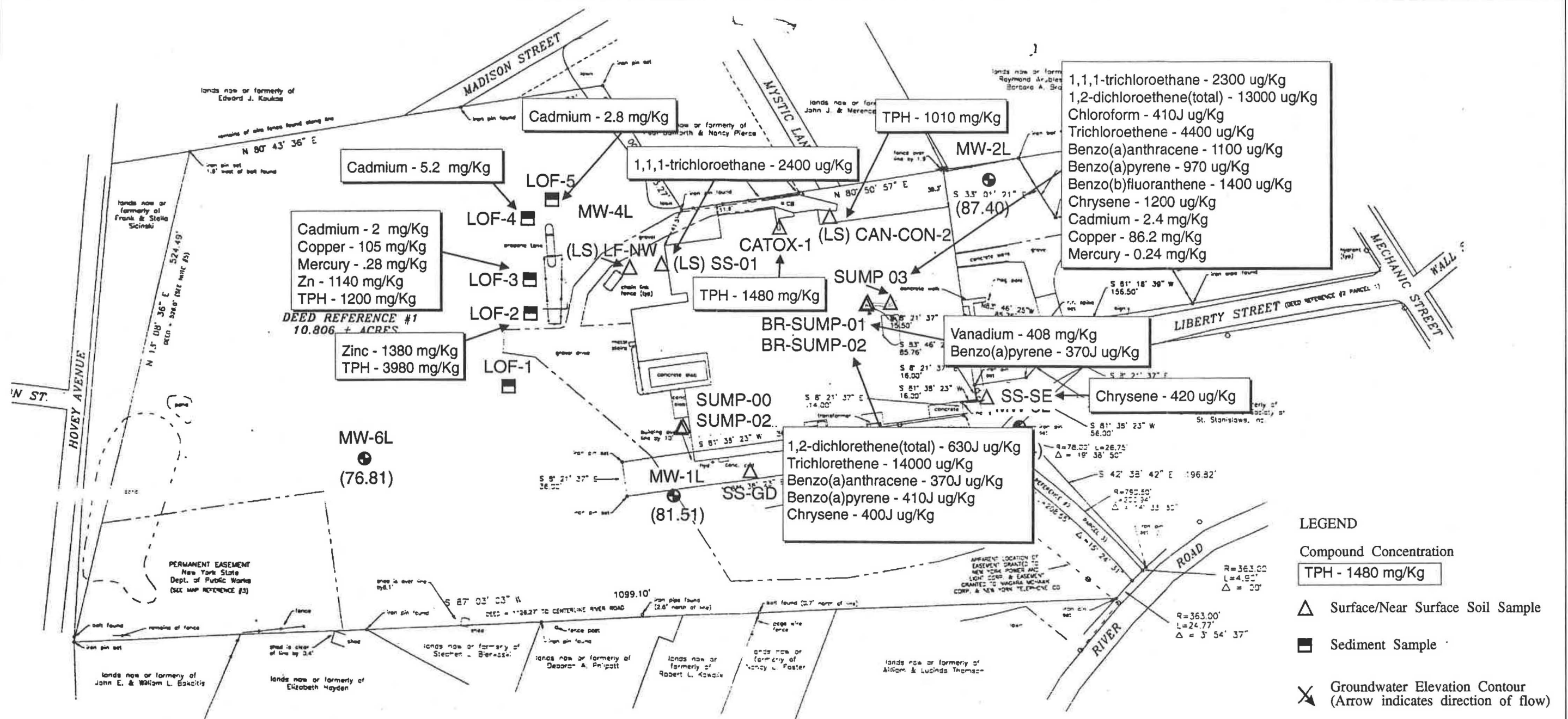
Notes:

SB - Site Background

ND - Not Detected

* Source: Division Technical and Administrative Guidance Memorandum: Determination of Soil Cleanup Objectives and Cleanup Levels.

** Special Condition (see text)



NOTES

1. UNAUTHORIZED ALTERATION OR ADDITION TO A SURVEY MAP BEARING A LICENSED LAND SURVEYOR'S SEAL IS A VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAW.
2. ONLY COPIES FROM THE ORIGINAL OF THIS SURVEY MARKED WITH AN ORIGINAL OF THE LAND SURVEYOR'S EMBOSSED SEAL SHALL BE CONSIDERED TO BE VALID TRUE COPIES.
3. THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE OR TITLE REPORT AND IS, THEREFORE, SUBJECT TO ANY EASEMENTS, COVENANTS, OR RESTRICTIONS OF RECORD OR ANY STATEMENT OF FACTS SUCH DOCUMENTS WOULD DISCLOSE.
4. BOUNDARY LINES SHOWN ON THIS MAP ARE BASED ON THE RECORD DESCRIPTIONS, SET FORTH IN DEED REFERENCE #1 AND DEED REFERENCE #2 AND ON MONUMENTATION FOUND.
5. THE DISTANCE ALONG THE WESTERLY BOUNDARY WAS ADJUSTED SLIGHTLY TO AGREE WITH EVIDENCE AND MONUMENTATION FOUND ALONG THE SOUTHERLY BOUNDARY.
6. NO UNDERGROUND UTILITIES ARE SHOWN ON THIS MAP.

DEED REFERENCES

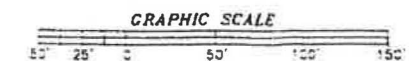
1. B & M SHOE COMPANY, INC. TO DODGE INDUSTRIES, INC., DATED JULY 13, 1972 AND RECORDED IN THE RENSSELAER COUNTY CLERK'S OFFICE ON JULY 18, 1972 IN LIBER 1239 OF DEEDS AT PAGE 286.
2. COMMITTEE FOR INDUSTRY, INC. TO VILLAGE OF HOOSICK FALLS, DATED NOVEMBER 28, 1949 AND RECORDED IN THE RENSSELAER COUNTY CLERK'S OFFICE IN LIBER 842 OF DEEDS AT PAGE 432.

MAP REFERENCES

1. MAP OF PART OF THE WHITE LOT (DORR FARM), PREPARED BY PERCY AND PERCY, DATED OCTOBER 20, 1949.
2. SURVEY OF LANDS PURCHASED BY ELDREDGE AND A-TE, PREPARED BY L. C. WILDER, SURVEYOR, DATED NOVEMBER 1880.
3. NEW YORK STATE DEPARTMENT OF PUBLIC WORKS APPROPRIATION MAP, HOOSICK FALLS FLOOD PROTECTION PROJECT - HOOSICK RIVER - WOODS BROOK MAP NO. 74.

TAX MAP REFERENCE

VILLAGE OF HOOSICK FALLS 27.10 - 9 - 20



LEGEND

Compound Concentration

TPH - 1480 mg/Kg

△ Surface/Near Surface Soil Sample

■ Sediment Sample

✕ Groundwater Elevation Contour
(Arrow indicates direction of flow)

Groundwater level measurements
taken on 3/7/96

PARSONS
PARSONS ENGINEERING SCIENCE, INC.

CLIENT/PROJECT TITLE
FURON

HOOSICK FALLS, NY
ENVIRONMENTAL SITE ASSESSMENT

DEPT. ENVIRONMENTAL ENGINEERING DWG. NO. 728098-06500

FIGURE 5-1
Concentrations of Compounds of Concern
in Soils and Sediments

Liberty Street Facility
Phase II ESA

SCALE DATE APRIL 1996

SOURCE OF SURVEY MAP: SURVEYED BY DAVID F. BARRASS LAND SURVEYOR
9 MAPLE STREET, CORINTH, NEW YORK

Surface/Near Surface Soils

Eight VOCs were detected in the 11 surface/near surface soil samples. They were acetone, methylene chloride, toluene, tetrachloroethene, 1,1,1-trichloroethane, 1,2-dichloroethene (total), trichloroethene, and chloroform. The latter four VOC compounds were detected at concentrations above their respective NYSDEC TAGM values.

The NYSDEC TAGM value for 1,1,1-trichloroethane is 800 ug/kg. The compound was detected in two soil samples at concentrations of 2,400 ug/kg at sample location (LS) SS-01 (sample depth 1.0-1.5 feet below grade) and 2,300 ug/kg at sample location SUMP-03 (sample depth 3.2-3.7 feet below grade). The NYSDEC TAGM value for 1,2-dichloroethene (total) is 300 ug/kg. At sample location SUMP-03, 1,2-dichloroethene (total) was detected at a concentration of 13,000 ug/kg. The compound was also detected at an estimated concentration of 630 ug/kg at sample location BR-SUMP-02 (sample depth 2.5-3.0 feet below grade). Trichloroethene was also present at sample locations BR-SUMP-02 at 14,000 ug/kg, and at sample location SUMP-03 at 4,400 ug/kg. The NYSDEC TAGM value for trichloroethene is 700 ug/kg. Chloroform was detected in the sample SUMP-03 at an estimated concentration of 410 ug/kg. The NYSDEC TAGM for chloroform is 300 ug/kg. **Figure 5-1** presents the Concentrations of Compounds of Concern in Soils and Sediments.

Semivolatile Organic Compounds

Soil Borings

No SVOCs were detected in the soil boring samples at concentrations above their respective TAGM values.

Surface/Near Surface Soils

Of the 23 semivolatile compounds detected in the surface/near surface soil samples, four Polynuclear Aromatic Hydrocarbon (PAH) compounds were detected above their associated NYSDEC TAGM values. The compound benzo(a)anthracene, with a TAGM value of 330 ug/kg, was detected at two sample locations: BR-SUMP-02 at an estimated concentration of 370 ug/kg, and at SUMP-03 at a concentration of 1,100 ug/kg. Benzo(a)pyrene (TAGM value

of 330 ug/kg) was detected at concentrations of 370 ug/kg (estimated) at sample location BR-SUMP-01 (sample depth 0.5-1.0 feet below grade), 410 ug/kg at BR-SUMP-02 and 970 ug/kg at SUMP-03. Chrysene was detected at sample location BR-SUMP-02 at its corresponding NYSDEC TAGM value of 400 ug/kg. Chrysene was also detected in the soil samples SS-SE (collected 0.5-1.5 feet below grade) at a concentration of 420 ug/kg, and at sample SUMP-03 at a concentration of 1200 ug/kg. At soil sample SUMP-03 benzo(b)fluoranthene (TAGM value of 1,100 ug/kg) was detected at a concentration of 1400 ug/kg. **Figure 5-1** presents the Concentrations of Compounds of Concern in Soils and Sediments.

Metals

Soil Borings

Fifteen out of 23 metal compounds were detected at concentrations slightly above (1.0-1.2 times) their associated NYSDEC TAGM value. Antimony, which was not detected in the background sample, reported a maximum concentrations of 2.6 mg/kg in sample MW-1L-0. These exceedances are all considered to be reflective of natural soil chemistry variations.

Surface/Near Surface Soils

A total of sixteen metal compounds were detected at concentrations slightly above their respective recommended soil cleanup objective concentration.

Four of these compounds cadmium, copper, mercury and vanadium were reported at concentrations which were at least two times their associated TAGM value. Cadmium was detected at a maximum concentration of 2.4 mg/kg (TAGM value of 1 mg/kg) in soil sample SUMP-03. Copper was detected at a maximum concentration of 86.2 mg/kg (TAGM value of 40.9 mg/kg) in soil sample SUMP-03. Vanadium was reported at a maximum concentration of 408 mg/kg (TAGM value of 150 mg/kg) in soil sample BR-SUMP-01. Mercury was reported at a maximum concentration of 0.24 mg/kg (TAGM value of 0.1 mg/kg) in soil sample SUMP-03.

The balance of these exceedances are considered to be reflective of natural soil chemistry variations.

Figure 5-1 presents the Concentrations of Compounds of Concern in Soils and Sediments. The metals presented were detected at concentrations at least two times above their respective recommended soil cleanup objective concentration.

Total Petroleum Hydrocarbons

Soil Borings

TPH was detected in the soil boring sample MW-1L-0 at a concentration of 188 mg/kg. There is no NYSDEC TAGM value for TPHs.

Surface/Near Surface Soils

TPHs was detected in all eight surface/near surface soils samples. Two soil samples, CATOX-1 and (LS) CAN-CON-2, had concentrations of 1480 mg/kg and 1010 mg/kg, respectively. **Figure 5-1** presents the concentrations of compounds of concern in soils and sediments.

Polychlorinated Biphenyls

Soil Borings

No soil boring samples were analyzed for PCBs.

Surface/Near Surface Soils

One surface/near surface soil sample, SS-GD (collected in the gravel driveway) was analyzed for PCBs. No PCBs were detected at concentrations above the TAGM values.

5.3 SEDIMENT RESULTS

Sediment sampling results were compared to the NYSDEC TAGM values. For metals, the value used for comparison was the NYSDEC TAGM, or the background concentration determined from the background sample (MW-2L-05), whichever was higher. The full chemical analysis results for the sediment samples are included in **Appendix E**.

Volatile Organic Compounds

Six VOCs were detected in four of the five sediment samples at concentrations well below their respective TAGM values. The highest VOC concentration detected was in sample LOF-3 where trichloroethene was detected at a concentration of 120 ug/kg. The NYSDEC TAGM value for trichloroethene is 700 ug/kg.

Semivolatile Organic Compounds

A total of 24 SVOCs were detected in the five sediment samples. No SVOCs were detected above their respective TAGM value. The maximum concentration detected was 4,000 ug/kg of bis(2-ethylhexyl)phthalate at sample location LOF-3.

Polychlorinated Biphenyls

Two PCB compounds, aroclor-1254 and aroclor-1260, were detected in samples LOF-1, LOF-2 and LOF-3 at concentrations well below their NYSDEC TAGM value of 1,000 ug/kg.

Metals

A total of twenty metal compounds were detected in the sediment samples. Seventeen of the 20 compounds were detected at concentrations only slightly above their respective recommended soil cleanup objective concentration. The following summarizes the metals which were detected at concentrations at least two times above the recommended soil cleanup objective concentration:

<u>Metal</u>	<u>Sample Location</u>	<u>Background Value(mg/kg)</u>	<u>Detected Concentration (mg/kg)</u>
Cadmium	LOF-3	1	2
Cadmium	LOF-4	1	5.2
Cadmium	LOF-5	1	2.8
Copper	LOF-3	40.9	105
Mercury	LOF-3	0.1	0.28
Zinc	LOF-3	122	1,140
Zinc	LOF-2	122	1,380

Figure 5-1 presents the Concentrations of Compounds of Concern in Soils and Sediments.

Total Petroleum Hydrocarbons

TPH was detected in three of the five sediment samples. The highest concentration detected was in sediment sample LOF-2, at 3,980 mg/kg. The TPH concentrations for the other two samples were 1,200 mg/kg at LOF-3 and 189 mg/kg at LOF-1.

5.4 GROUNDWATER SAMPLING RESULTS

The analytical results from the groundwater sampling were compared to the New York State Groundwater Class GA Standards, the New York State Primary Drinking Water Quality Standards, and the Federal Safe Drinking Water Act MCLs.

The full chemical analysis results for groundwater are presented in **Appendix F**.

Volatile Organic Compounds

No VOCs were detected in the five groundwater samples above their respective Federal MCLs or New York State Groundwater Standards.

Semivolatile Organic Compounds

No SVOCs were detected above the Federal MCLs or New York State Groundwater Standards.

Metals

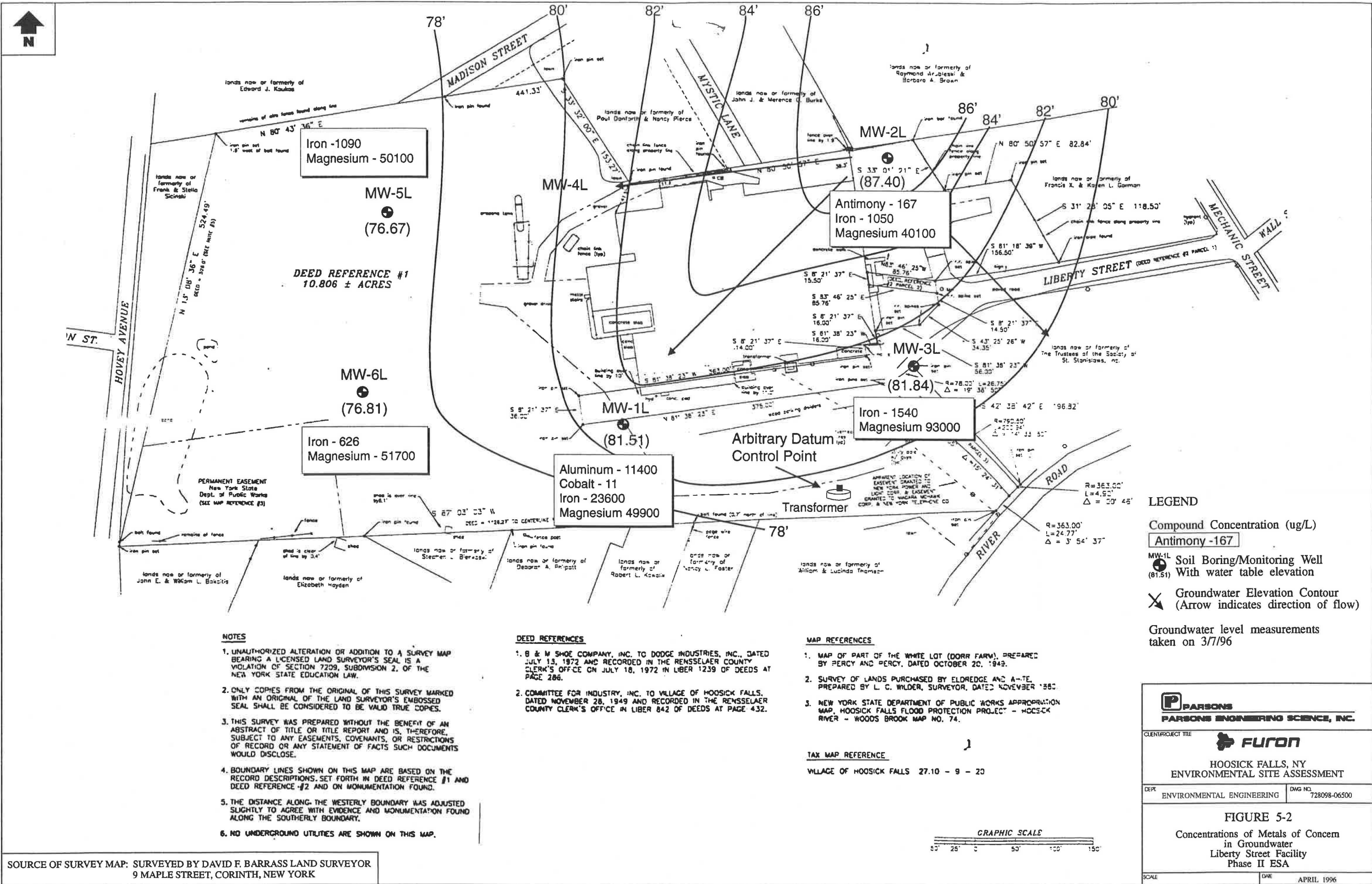
Twenty out of 23 metals were detected in the five groundwater samples. Nine of the twenty compounds were detected at concentrations above their respective standards. Five of the nine compounds were detected at concentrations which were at least two times above their respective standard. Iron and magnesium were detected above their standards in all five monitoring wells. Along with iron and magnesium, the following metals are common constituents found in groundwater: aluminum, calcium, potassium, manganese and sodium.

The Metals of Concern in Groundwater are summarized below and are presented in **Figure 5-2**.

<u>Metal</u>	<u>Monitoring Well</u>	<u>Federal MCL or New York Standards(ug/l)</u>	<u>Detected Concentration (ug/l)</u>
Aluminum	MW-1L	1000	11400
Antimony	MW-2L	6	167
Cobalt	MW-1L	5	11
Iron	MW-1L	300	23600
Iron	MW-2L	300	1050
Iron	MW-3L	300	1540
Iron	MW-5L	300	1090
Iron	MW-6L	300	626
Magnesium	MW-1L	35000	49900
Magnesium	MW-2L	35000	40100
Magnesium	MW-3L	35000	93000
Magnesium	MW-5L	35000	50100
Magnesium	MW-6L	35000	51700

Total Petroleum Hydrocarbons

One groundwater sample collected from monitoring well MW-2L was analyzed for TPHs. No TPHs were detected.



6.0 FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

6.1 FINDINGS

6.1.1 Soil Analysis Results

The soil analyses results of the Phase II ESA conducted at the Liberty Street facility indicates that four VOCs were present in the soils at concentrations above their respective TAGM value.

The compound 1,1,1-trichloroethane was detected above the NYSDEC TAGM value in two soil samples including SUMP-03 and (LS)SS-01. Soil sample SUMP-03 was collected north and adjacent to the old boiler room, approximately 3.5 feet below grade. Soil sample (LS)SS-01 was collected in proximity to the northwest corner of the facility, 1-1.5 feet below grade.

The VOC 1,2-dichloroethane (total) was detected at sample location SUMP-03 at a concentration of 13,000 ug/kg which is more than 43 times the TAGM value of 300 ug/kg. The compound was also detected in the sample BR-SUMP-02 at an estimated concentration more than 2 times the TAGM value. The soil sample BR-SUMP-02 was collected adjacent to the sump located in the courtyard area, 2.5-3.0 feet below grade.

Trichloroethene was also detected in the samples SUMP-03 and BR-SUMP-02 at concentrations above the TAGM value.

And finally, chloroform was detected in the sample SUMP-03 above the NYSDEC TAGM value.

The soil analysis results also indicate that four semivolatiles (PAHs) were detected above their respective NYSDEC TAGM value.

Benzo(a)anthracene was detected in SUMP-03 and in sample BR-SUMP-02 above the TAGM value.

Benzo(a)pyrene was detected in samples SUMP-03, BR-SUMP-02 and in BR-SUMP-01 above the TAGM value.

Chrysene was detected in samples SUMP-03 and BR-SUMP-02 at concentrations at above the TAGM value.

And finally, benzo(b)fluorenthene was detected in soil sample SUMP-03 at a concentration slightly above the TAGM value.

The only sample analyzed for PCBs was sample SS-GD, collected in the gravel driveway. It reported two PCBs aroclor-1254 and aroclor-1260 at concentrations well below their respective TAGM value.

Non-inclusive of those metals which are common constituents in clay soils (i.e., aluminum, calcium, iron, manganese, magnesium and potassium), the soil analysis results indicate that four metals were detected at concentrations which were more than two times their respective recommended soil cleanup objective concentration. The compounds of concern and their concentrations are as follows: cadmium 2.4 mg/kg, copper - 86.2 mg/kg, mercury - 0.24 mg/kg, and vanadium - 408 mg/kg. Three of the four compounds, cadmium, copper and mercury, were detected at their maximum concentrations at sample location SUMP-03. The remaining compound, vanadium, was detected at a maximum concentration at sample location BR-SUMP-01. Although vanadium was detected at a concentration approximately 2.7 times the TAGM value, its exceedance may be representative of natural soil chemistry variations.

TPH was detected in three soil samples. The soil sample MW-IL-0 had a TPH concentration of 188 mg/kg. The other two samples CA-TOX-1 and (LS) Can-Con-2 had concentrations of 1,480 mg/kg and 1,010 mg/Kg, respectively. The latter two samples were collected in the area of the historic "CAN" extrusion process condensate release area.

6.1.2 Sediment Analysis Results

The results of the sediment sampling analysis reported no VOC, SVOC or PCB concentrations above their respective TAGM value. Sixteen metals were detected above their respective recommended soil cleanup objective concentration. Seven of the 16 metals are common constituents of clay soils. The nine remaining metals are the following: arsenic, beryllium, cadmium, chromium, copper, mercury, nickel, selenium and zinc. Four of these

nine metals were detected at concentrations which were at least two times the recommended soil cleanup objective concentration. These are listed below:

<u>Compound</u>	<u>Sample Location</u>	Recommended	Maximum
		Soil Cleanup Objective <u>Concentration (mg/kg)</u>	Detected <u>Concentration (mg/kg)</u>
Cadmium	LOF-4	1.0	5.2
Copper	LOF-3	40.9	105
Mercury	LOF-3	0.1	0.28
Zinc	LOF-2	122	1,380

The sediment sampling results also detected elevated concentrations of TPH at two of the five sample locations. The sample collected at location LOF-2 had a concentration of 3,980 mg/kg, while sample LOF-3 had a concentration of 1,200 mg/kg.

6.1.3 Groundwater Analysis Results

The groundwater analysis results of the Phase II ESA indicate that no VOCs, SVOCs or TPHs, exceeded their respective Federal MCLs or New York State Groundwater Quality standards. Five metals were detected at concentrations which were at least two times their respective standards. These were aluminum, antimony, cobalt, iron and magnesium. Aluminum, iron and magnesium are common constituents found in groundwater. Antimony was detected in monitoring well MW-2L at a concentration which was over 27 times the New York State Class GA Standard. Cobalt was detected in monitoring well MW-1L at a concentration which was 2.2 times the Standard. Although antimony and cobalt are not generally common constituents in groundwater, their concentrations could be attributed to the elevated turbidity of the samples analyzed.

6.2 **CONCLUSIONS**

The Phase II Environmental Site Assessment was designed to address the two "recognized environmental conditions," evaluate other conditions of environmental concern identified in the Phase I ESA, and to establish the "baseline environmental conditions" for the property.

The two recognized environmental conditions were the potential fuel oil releases from the recently (August, 1995) removed USTs and the potential releases related to the use of solvents as part of the manufacturing processes. Other conditions of environmental concern included the potential process leach fields, hazardous waste storage area, the waste water collection and discharge system, exterior drainage systems sumps, the "can" extrusion process condensate spill event and housekeeping issues.

The soil analysis results indicate that the soil sample (SUMP-03) collected adjacent to the exterior wall of the boiler room sump contained four VOCs, four PAHs and three metals at concentrations above their respective NYSDEC recommended soil cleanup objective concentration. These detected concentrations may be attributed to the "old" boiler room sump. According to the Phase I ESA Report, the boiler room sump receives discharge from several drain pipes emanating from the front office and laboratory area of the facility. Also during the Phase I ESA, oil stains and a waste oil drum were observed in proximity to the sump. According to Tom Wykoski, a Liberty Street facility employee, the sump collects boiler "blow-down water." The boiler room sump also has an overflow line which discharges into a sump located in the courtyard, in proximity to the boiler room sump. The soil sample SUMP-03 was collected adjacent to the overflow line. The limited sampling and analysis conducted in this area indicates that the integrity of the "old" boiler room sump, and/or the overflow line associated with it, may have been breached at some point in their history.

The soil sample (BR-SUMP-02) collected adjacent to the courtyard sump, (2.5-3.0 below grade), showed the presence of two VOCs and three PAHs at concentrations above their respective TAGM value. The five compounds detected at sample location BR-SUMP-02 were also found at sample location SUMP-03. The soil sample BR-SUMP-01, collected above sample BR-SUMP-02 (0.5-1.0 feet below grade), showed Vanadium at a concentration which is above the TAGM value. The reported concentration for vanadium may be reflective of natural soil chemistry variations. The presence of vanadium may also be attributed to other sources such as fuel oils, since vanadium is a common constituent in fuel oils.

During the Phase II ESA, two pipes emanating from the boiler room were observed discharging liquid which flowed into the sump located in the courtyard. According to Mr. Wykoski, the liquid is water from the condensate return tank located in the "old" boiler room. This liquid may also be a source for the reported concentrations of vanadium.

Results from the soil sample (LS) SS-01 showed a concentration of 1,1,1-trichloroethane above the TAGM value. This sample was collected near the northwest corner of the facility in proximity to the entrance to the mixing rooms, in an area of stressed vegetation, from a depth of 1.0-1.5 feet below grade.

Both of the soil samples collected to investigate the historic "CAN" extrusion process condensate release, indicated the presence of TPH (1480 mg/kg and 1,010 mg/kg). Both of these samples were collected from a depth of 1 - 2 feet below grade.

Sediment samples collected from the five drain pipes located in the field west of the facility indicated the presence of metals including cadmium, copper, zinc, and mercury, at concentrations at least two times the recommended soil cleanup objective concentration. TPHs were also detected in two of the five sediment samples (i.e., LOF-2 and LOF-3). These results suggest that present or past sources drained by these pipes may have potentially contained metals and TPHs.

One soil sample, SS-GD, was collected from 0-1.5 feet below grade in the gravel driveway and was analyzed for PCBs and TPHs. No PCBs were detected above the respective TAGM value and TPH was reported at 23.4 mg/kg. There is no TAGM value for TPH in New York State.

One soil sample, SS-SE, was collected at a depth of 0.5-1.5 feet below grade from the area of a suspected copper hydroxide release. The soil analysis results detected the PAH compound chrysene. The limited sampling and analysis conducted in this area suggests that metals are present at background concentrations.

Sampling and analysis conducted to investigate the sump located exterior to the PSAT coating process room, showed that no VOCs, SVOCs or metals were detected above their TAGM values in the soil samples collected adjacent to the sump.

The soil sample (LS) LF-NW, collected 1.0-1.5 feet below grade in the vicinity of the historic process discharge area, had no VOCs, SVOCs, or metals reported above the TAGM values.

The groundwater analysis results indicate that five metals are present in five monitoring wells at concentrations at least two times their respective Federal MCL or New York State Groundwater Quality Standards.

Three of the five metals aluminum, iron, and magnesium, are common constituents in groundwater. The presence of the other two metals, antimony and cobalt, could be attributed to the elevated turbidity of the samples analyzed.

6.3 RECOMMENDATIONS

VOCs, PAHs, and metals were detected in the soil sample collected exterior to the sump in the "old" boiler room. The discharge received by the sump should be investigated for the presence of VOCs, PAHs, and metals. It is also recommended that the integrity of the sump, and the overflow line associated with it, should be investigated to prevent possible releases to the surrounding soils and groundwater.

VOCs, PAHs, and the metal vanadium, were also detected in the soils collected adjacent to the sump located in the courtyard. It is recommended that the integrity of the sump, and the overflow line associated with it, also be investigated. Also, aqueous samples of this material believed to be water from the condensate return tank should be collected and analyzed from the two pipes emanating from the boiler room which discharge into the sump. Additionally, it is recommended the Furon Company begin record searches to determine if past evidence of vanadium usage at the facility can be found.

Further soil investigations should be conducted in the historic "CAN" extrusion process condensate release area to delineate the extent of TPHs in soils.

The wastewater collection system including the five drainage pipes located in the field west of the facility should be investigated to more fully document the sources drained by these pipes.

Further soil investigations should be conducted in proximity to the entrance of the mixing room where 1,1,1-trichloroethane was detected.

The metal concentrations encountered in the groundwater at the Liberty Street facility are not believed to be indicative of environmental site problems.

It is recommended that no further groundwater sampling is presently warranted at the facility. The six newly installed monitoring wells are to be closed in accordance with NYSDEC guidelines.

7.0 REFERENCES

40 Code of Federal Regulations (CFR), Parts 141 and 142, May 1995.

Goldsmith R. Ratcliffe, N.M., Robinson P., and Stanley, R.S. 1983.

Bedrock Geologic Map of Massachusetts, Department of Public Works, and Joseph A. Sinnott.

Miller, Norton G. 1987. Natural History of Rensselaer County, pp 6 and 8j.

Landmarks of Rensselaer County New York.

New York State Department of Environmental Conservation. Revised January 24, 1994.

Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046.

Official Compilation of Codes, Rules, and Regulations of the State of New York, Title 6,

Part 360, April 1995 and Parts 701-705, June 1995. Class GA Groundwater.

Parsons Engineering Science 1995. Draft Phase I Environmental Site Assessment,

McCaffrey Street Facility.